J Korean Surg Soc 2012;83:107-110
http://dx.doi.org/10.4174/jkss.2012.83.2.107

JKSS
Journal of the Korean Surgical Society

pISSN 2233-7903 · eISSN 2093-0488

CASE REPORT

Giant sized epidermal inclusion cyst of the breast initially mimicking a large fibroadenoma or phyllodes tumor

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Epidermal inclusion cysts are formed by inclusion of keratinizing squamous epithelium within the dermis, resulting in a cyst filled with lamellated keratin. These benign cysts are usually very small and intradermal subcutaneous lesions. They can occur anywhere in the body although they are more common on the face, trunk, neck, extremities and scalp. Only a few cases of epidermal cysts of the breast have been reported in the literature. An epidermal inclusion cyst of the breast can result in several problems, even if the size is unusual. We encountered a case of a giant sized epidermal inclusion cyst of the breast initially mimicking a large fibroadenoma or phyllodes tumor.

Key Words: Epidermal cyst, Breast neoplasms

INTRODUCTION

An epidermal inclusion cyst refers to a cyst that results from the proliferation and implantation of epidermal elements within a circumscribed space in the dermis. These cysts grow through accumulation of epithelial and keratinous debris. Histopathologically, these lesions are formed by inclusion of keratinizing squamous epithelium within the dermis resulting in a cyst filled with lamellated keratin [1].

CASE REPORT

A 47-year-old female was admitted with a complaint of a large palpable mass in the left breast. This mass had gradually grown over 6 months. There were no associated symptoms of pain, nipple discharge or history of trauma.

Physical examination revealed an over 8 cm sized large subareolar lesion of the left breast which appeared to be a firm, well-described mass, attached to the skin.

The patient subsequently underwent several studies for diagnosis. Abnormal laboratory findings were not observed with a normal range of complete blood count and C-reactive protein. Mammography showed a round,

Received January 19, 2012, Revised March 14, 2012, Accepted March 28, 2012

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dense, smoothly outlined mass measuring 7 × 6 cm (Fig. 1). Breast sonography showed a solid, hypoechoic with heterogeneous internal echoes and well demarcated border (Fig. 2).

Physical and imaging examination indicated a benign nature. Therefore, we presumed a large fibroadenoma or phyllodes tumor, or benign features of a malignant lesion such as mucinous carcinoma due to the overly large size.

A fine needle aspiration biopsy was done and a thick yellowish viscid material with offensive odor was aspirated during the biopsy thus confirming the cystic nature of the lesion. However, we could not get adequate biopsy material due to too its thick nature and the mass was still palpable. The giant size and breast location of the palpable mass was causing the patient's discomfort, and the mass size had grown gradually over the past month. Moreover, there was clinical concern for possible underlying malignancy due to the overly large sized mass, and the mass had a potential risk of malignant transformation. We therefore decided to perform a total mass excision.

The histology of the specimens showed a cyst lined by mature stratified squamous epithelium filled with laminated keratin along with a cholesterol cleft surrounded by a giant cell and histiocytes suggesting a microruptured cyst (Fig. 3).

Based on these data, we established the diagnosis as a micro-ruptured epidermal inclusion cyst in the breast.

At the follow-up examination 8 months postoperatively, the patient was asymptomatic and there was no local recurrence of the lesion.

In summary, we encountered a rare case of a giant-sized epidermal inclusion cyst of the breast that initially mimicked a large fibroadenoma or phyllodes tumor.

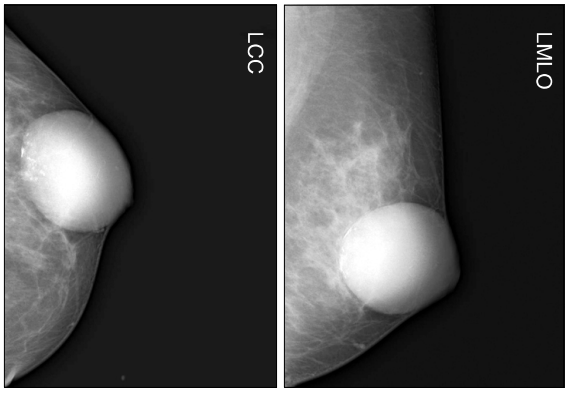

Fig. 1. Mammography showed a round, dense, smoothly outlined mass measuring 7 × 6 cm. LCC, left craniocaudal; LMLO, left mediolateral oblique.

DISCUSSION

Epidermal inclusion cysts are common cutaneous benign inflammatory lesions, and have been found in various parts of the body that are usually located in the face, scalp, neck, and trunk. Only a few cases of epidermal cysts of the breast have been reported in the literature and most of these cases are small in size except 1 case where the reported size was 9 × 8 cm [2]. Furthermore, a larger than 7

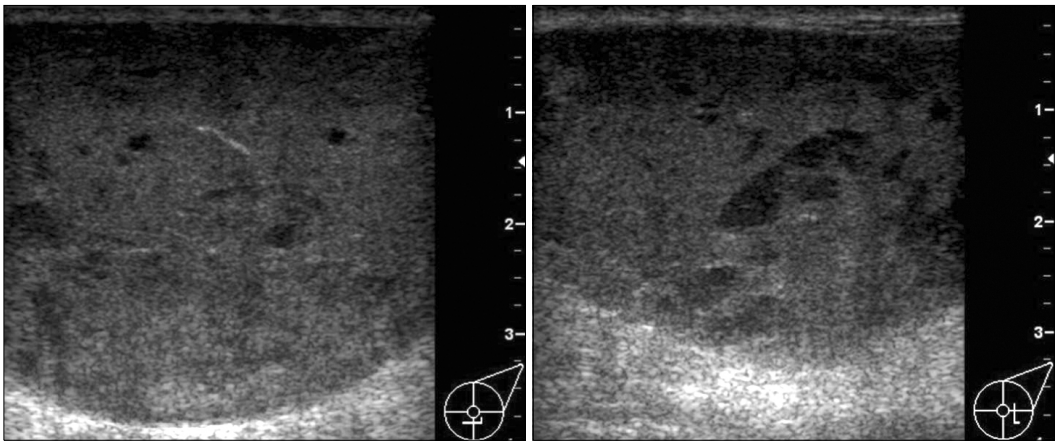

Fig. 2. Breast sonography showed solid, hypoechoic with heterogeneous internal echoes and well demarcated border.

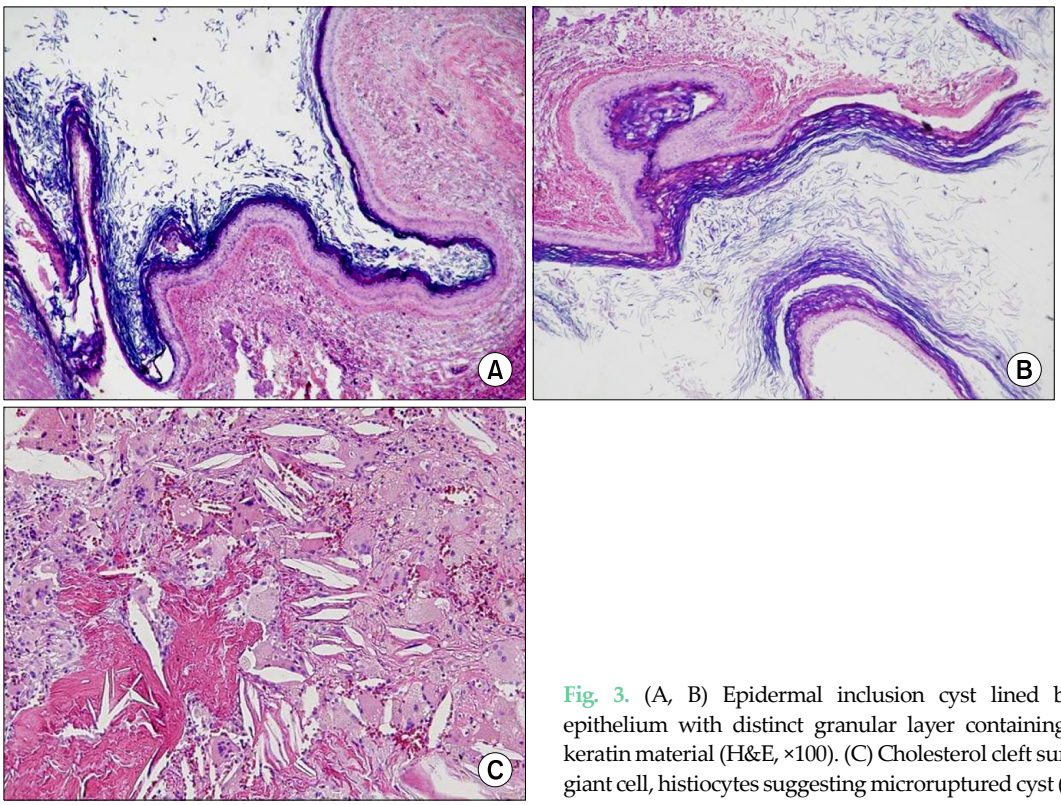

Fig. 3. (A, B) Epidermal inclusion cyst lined by cornified epithelium with distinct granular layer containing lamellated keratin material (H&E, ×100). (C) Cholesterol cleft surrounded by giant cell, histiocytes suggesting microruptured cyst (H&E, ×200).

cm large size epidermal inclusion cyst in the breast has not been reported in Korean literature.

Epidermal inclusion cysts have been referred to by various terms including: follicular infundibular cysts, epidermal cysts, and epidermoid cysts. The term epidermal inclusion cyst refers specifically to an epidermoid cyst that is the result of the implantation of epidermal elements in the dermis.

There is no definitive understanding of how epidermal inclusion cysts actually develop, however a few theories of their etiology have been postulated.

Firstly, epidermal inclusion cysts can be congenital, arising from cell nests remaining from cells such as the embryonal mammary ridge. Secondly, they can develop from obstructed hair follicles [1]. Thirdly, epidermal inclusion cysts may result from trauma, such as reduction mammoplasty or needle biopsy of the breast. These procedures may cause epidermal fragments to be implanted more deeply within the breast tissue and a concurrent stimulation of epithelial proliferation [3]. Fourthly, pilosebaceous structures may become inflamed, leading to a cystic reaction in the dermis. This theory is typically used to explain the presence of cysts on the face, neck, and trunk [4]. Finally, epidermal inclusion cysts may be created by squamous metaplasia of normal columnar cells within a dilated duct in the case of fibrocystic disease or in a fibroadenoma or phyllodes tumours [5].

Most breast epidermal inclusion cysts occur in the skin layer and physical examination revealed a firm, well described, and small mass.

The mammography appearance of epidermal inclusion cyst in the breast typically appears to be well circumscribed with homogeneous increased density. The sonographic appearance of epidermal inclusion cyst in breast may have a solid, well-circumscribed and complex or heterogeneous appearance. Some reports described the specific sonographic features of these lesions such as an onion ring appearance with alternating concentric hyperechoic and hypoechoic rings containing lamellated keratin, while other reports described cysts with extension into the dermis [6]. Magnetic resonance imaging analysis of epidermal inclusion cysts showed a fluid-like signal with var-

iable low-signal components on T2-weighted images and peripheral rim enhancement on gadolinium-enhanced images [7].

An epidermal inclusion cyst of the breast can result in several problems even if the size is unusual. First, spontaneous rupture of the large epidermal inclusion cyst may occur releasing nonabsorbable keratin that acts as an irritant leading to secondary foreign body reactions, granulomatous reactions or abscess formation [2]. More over, an association between epidermal inclusion cyst and squamous cell carcinoma has been reported. But incidence of malignant potential is extremely variable (0.045 to 19%) and true incidence is uncertain. Finally, a large sized cyst in the breast parenchyma should be evaluated using the differential diagnosis of a large fibroadenoma or phyllodes tumor, or even as a malignant breast lesion with benign features such as mucinous carcinoma [8,9].

Asymptomatic small sized lesions do not require treatment. Furthermore, biopsy is unnecessary if typical sonographic, mammographic, and clinical findings are found. However, epidermal inclusion cysts, especially palpable breast masses in women and large sized lesions that may cause patient discomfort physically and psychologically, require surgical excision. Entire cyst wall removal is recommended for both pathologic confirmation, such as a malignant lesion with benign imaging findings, and for the prevention of potential risks of recurrence (about 3%), inflammation, and malignant change [10].

CONFLICTS OF INTEREST

No potential conflict of interest relevant to this article was reported.

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